WHAT IS CLAIMED IS:

1. An apparatus for measuring the center of rotation of jaw motion and the track thereof, the apparatus comprising:

a pair of fixed markers attached to the left side and right side of patient's face respectively;

a pair of movable markers disposed to face the fixed markers in a spaced distance and moving in unison with the movement of the lower jaw of patient;

a coupling device for connecting the movable marker to the lower jaw of patient;

a plurality of cameras for recording the movement of the movable marker relative to the fixed marker, according to the movement of lower jaw; and

a control device for receiving and processing the image signals fed from connected cameras.

2. The apparatus of claim 1, wherein two cameras are positioned at each side of patient's face to measure the three-dimensional movement of the movable marker relative to the fixed marker.

3. The apparatus of claim 1, wherein the fixed marker has the shape of plate, and a borderline with a specific color is provided at the edge of the fixed marker for the easy discrimination from the surroundings.

4. The apparatus of claim 3, wherein the fixed marker has a corner point extraction marker formed on the borderline for the extraction of corner point which is needed to establish the fixed marker local coordinate system, and the corner point extraction marker has a different color from the borderline.

5. The apparatus of claim 4, wherein plurality of quadrangles are arrayed in a checkered pattern inside the borderline which is formed on the surface of the fixed marker, and the corner point is identified as the point where corners of quadrangles meet each other.

6. The apparatus of claim 1, wherein the movable marker has the shape of plate and smaller size than the fixed marker, and the movable marker has a borderline at the edge with a specific color for the easy discrimination from the surroundings.

7. The apparatus of claim 6, wherein a plurality of quadrangles are arrayed in a checkered pattern on the surface of the movable marker, and the movable marker has the shape of quadrangular plate.

8. The apparatus of claim 7, wherein the movable marker has a corner point extraction marker with different color for the extraction of corner point which is needed to establish the movable marker local coordinate system, and the corner point extraction marker is identified as the pairs of quadrangles located in the four corners of the movable marker.

9. The apparatus of claim 1, wherein the coupling device comprises:

a cross bar;

a holding fixture, one end of which is anchored on the lower jaw of patient and the other end of which is rotatably connected to the mid-point of the cross bar;

a pair of translation frames connected to the both end of the cross bar in a manner that the translation frame can make translational and rotational movement; and

a measuring frame, one end of which is connected to the translation frame in a manner that the measuring frame can make a straight motion in the orthogonal direction to the cross bar, and the other end of which is connected to the movable marker.

10. The apparatus of claim 9, wherein the movable marker is removably connected to the other end of the measuring frame.

11. The apparatus of claim 10, wherein, in place of the movable marker, a pointer is alternatively connected to the other end of the measuring frame to represent the center of rotation of lower jaw of patient on the surface of the fixed marker or the face of patient.

12. The apparatus of claim 1, further comprising a pointer to represent the center of rotation of lower jaw of patient on the surface of the fixed marker or the face of patient, wherein the pointer is alternatively attachable to the coupling device in place of the movable marker.

13. The apparatus of claim 1, wherein the control device is a personal computer.

14. The apparatus of claim 1, further comprising an orbital plane marker attached to a specific location around patient's eye to measure an orbitales, and the orbitales is used to define the orbital plane.

15. The apparatus of claim 14, wherein the orbital plane marker has the shape of thin plate, and a borderline with a specific color is provided at the edge of the orbital plane marker for the easy discrimination from the surroundings.

16. The apparatus of claim 14, wherein four quadrangles are arrayed in a checkered pattern inside the borderline of the orbital plane marker, and the corner point of the orbital plane marker is identified as the point where corners of four quadrangles meet each other.

17. A method for measuring jaw motion, comprising the steps of:

acquiring the image data through recording a fixed marker which is attached to the face of patient, and a movable marker which moves in unison with the motion of lower jaw with a camera;

calculating the coordinate values of each corner point of the fixed marker and the movable marker according to the movement of lower jaw with the stereo vision processing of the acquired image data;

calculating a coordinate transformation matrix between a fixed marker local coordinate system and a movable marker local coordinate system;

calculating the location of hinge axis by using the coordinate values of the respective corner points at the before and after movement of the movable marker; and

defining the left and right center of rotation of jaw motion by identifying the intersection point between the hinge axis and the fixed marker.

18. The method of claim 17, further comprising the steps of:

acquiring the image data by recording the orbital plane marker attached around the patient's eye with the camera, and calculating the coordinate value of an orbitales; and

redefining the center of rotation with respect to the absolute coordinate system,

wherein an orbital plane is defined as a plane that includes the three points of said redefined left and right center of rotation and the orbitales.

19. The method of claim 18, in case of lower jaw making both rotational and translational movement, further comprising the steps of:

identifying the center of rotation as the fixed point on the movable marker;

calculating the transformation matrix between fixed marker local coordinate system and movable marker local coordinate system at any instant of the motion of lower jaw;

transforming the coordinate value of the center of rotation which is defined in the movable marker local coordinate system, into the coordinate value with respect to the fixed marker local coordinate system; and

tracing the track of the center of rotation with respect to the orbital plane.

20. The method of claim 17, wherein the step of calculating the location of hinge axis comprising the steps of:

transforming the three-dimensional coordinate values of the corner points before and after the movement of the movable marker, into the coordinate values with respect to the fixed marker local coordinate system;

calculating a position vector and a direction vector of the hinge axis from the transformed coordinate values; and

obtaining the linear equation of the hinge axis of hinge with respect to the fixed marker local coordinate system.